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(54) Abstract Title
Fine product dispenser

(57) A machine 10 for scattering, e.g. chocolate or cocoa powder on a cup of cappuccino, comprises a base 40 having a lip 41 for locating a filled cup, a holder 20 having a hole 21 for receiving a disc (25, Figure 3) with apertures in a desired pattern or forming a desired logo, a cradle 12, 14 for supporting a powder container 15 with an outlet located above hole 21, and means 50 for striking the top of the container to dispense a metred amount of powder. The striking mechanism comprises a hammer 55 adjustably attached to a pin 54 which can be raised and subsequently released by a solenoid activated by either of two switches 42. The heights of the various parts of the machine are independently adjustable. A pivoted brush 30 enables excess powder to be swept away.

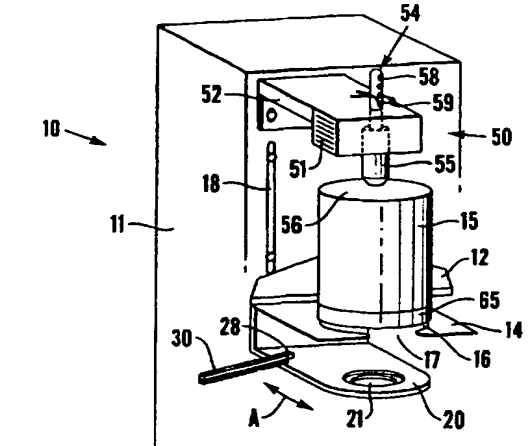
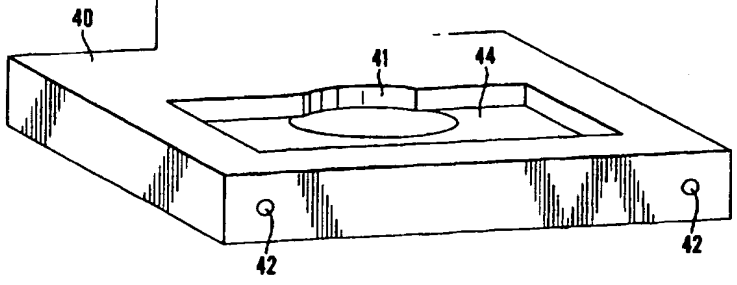


Fig. 1



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date but within the period prescribed by Rule 25(1) of the Patents Rules 1995.

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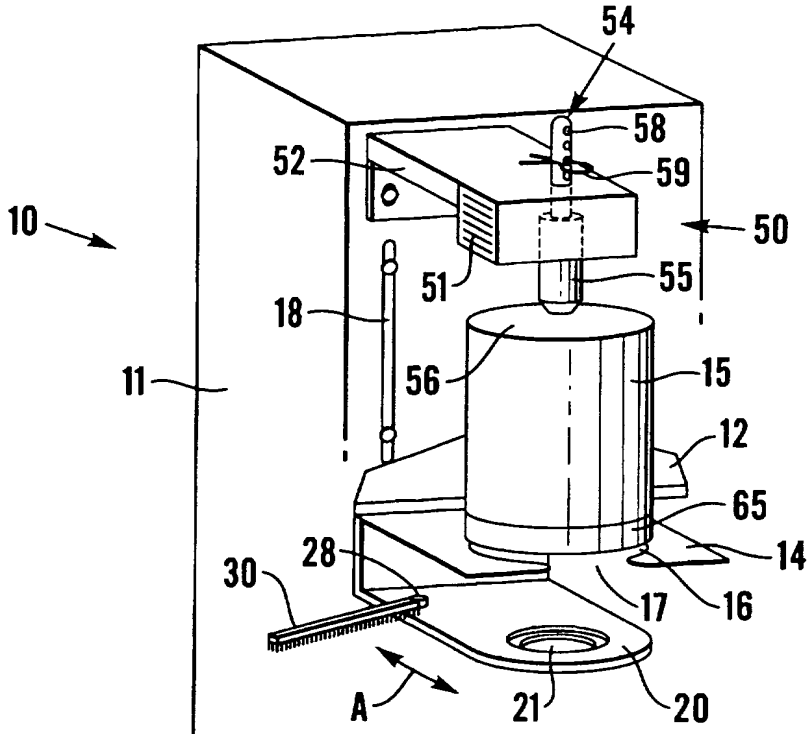
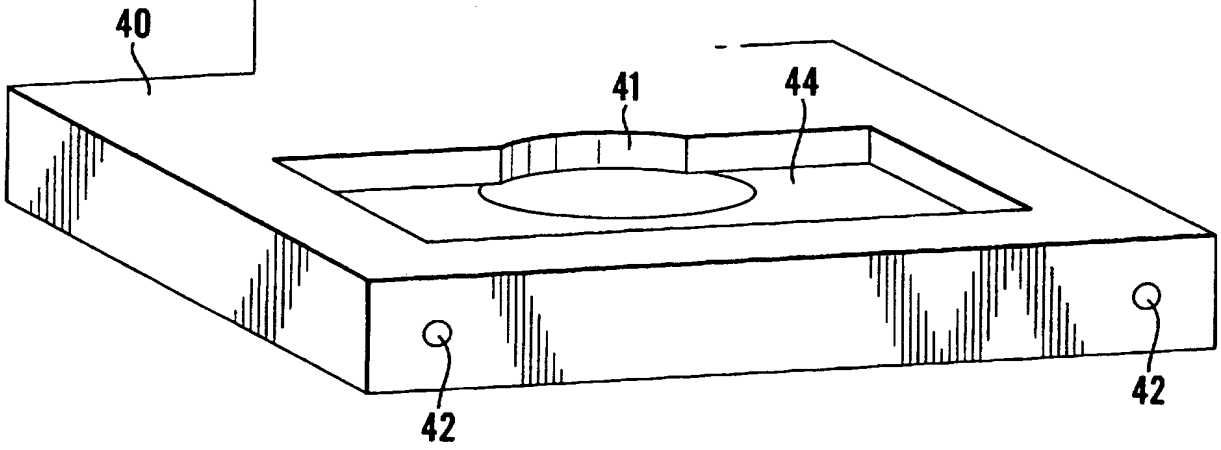


Fig. 1



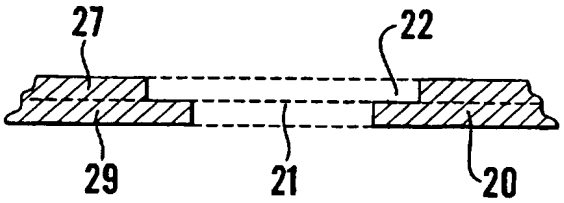


Fig. 2

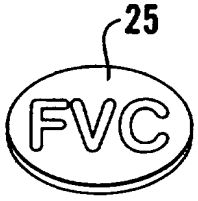


Fig. 3

Fine Product Dispenser

The present invention relates to a dispenser of a fine product, e.g. a powder such as chocolate powder. In particular it relates to dispensing a controlled amount of product at a desired location and in a particular pattern.

It is known to deposit chocolate or cocoa powder in a desired pattern on the top of a coffee drink with a layer of foam at the top, e.g. a cappuccino. At present this is done by manually shaking a powder dispenser over an apertured member defining the pattern. This has the disadvantage of being messy, wasteful and non-reproducible so that a wide range of amounts of powder can be dispensed giving results of variable quality.

The present invention seeks to overcome or reduce one or more of the above problems.

According to the present invention there is provided a dispenser for holding a container of the product, means for striking the container with a predetermined force to dispense product from the bottom of the container, and means which defines one or more apertures below the container and through which the product is arranged to fall.

In preferred arrangements, the heights of the container, the striking means and the aperture-defining means are all independently adjustable.

A preferred embodiment of the present invention will now be described, by way of example only, with reference to the accompanying drawings, of which:

Fig. 1 is a perspective view of a powder dispensing machine in accordance with the present invention;

Fig. 2 is an enlarged cross-sectional view of a disc-holder of the machine of Fig. 1; and

Fig. 3 shows one example of a patterned disc which can be inserted in the holder of Fig. 2.

Referring to the drawings, Fig. 1 shows a partially cut-away perspective view of a machine 10 for dispensing a metered amount of chocolate powder in an even pattern on to the top of a cappuccino drink.

The machine comprises a housing 11 which supports a cradle 12 with a base plate 14 for supporting an inverted container 15 of the chocolate powder (i.e. with the outlet holes in lid 65 at the bottom). Container 15 is cylindrical and cradle 14 is shaped to locate the container in the desired position in which the circumference of its bottom surface (in use) sits around the circumference of an aperture 16 in plate 14 which is of slightly smaller radius. The aperture has a gap 17 so that it is open to the front of the machine.

An adjustment mechanism 18 is provided so that the height of the cradle 12, 14 (and any container therein) can be adjusted relative to the housing.

Below the plate 14, a disc-holder 20 is also mounted on the housing 11, with its height being independently adjustable. The holder 20 has a central hole 21 which, as can be seen from Fig. 2, is stepped at its periphery 22. This enables an apertured disc 25, Fig. 3, to be held precisely in the holder 20 and flush with the surface thereof. The disc 25 is of stainless steel material and has one or more apertures 26 defining a desired pattern or logo. Holder 20 is conveniently constructed of two parallel plates 27, 29 with holes of slightly different diameters to define the stepped periphery 22. It will be appreciated that the diameter of discs 25 lies between the diameters of the holes in the plates.

Pivotally attached at 28 to the upper surface of the holder 20 is a brush 30 which can be moved in the direction of arrow A to sweep away powder which has accumulated on the holder 20 and disc 25.

A cup or mug of cappuccino is placed on a base member 40 of the machine with the bottom of the cup sitting against a lip 41 so as to accurately position the top of the cup beneath the container 15 and disc holder 20. The base member 40 has two switches 42, either of which can be used to actuate the machine. The cap sits on a plastics grill 44 which allows waste to collect inside the base member 40.

An actuator unit 50 for the machine comprises a solenoid 51 and operating circuitry associated therewith. The height of unit 50 can be adjusted relative to housing 11 by appropriate movement of a

bracket 52; this constitutes a relatively coarse height adjustment mechanism, allowing a typical range of movement of 5cm. Energisation of the solenoid pulls up a pin member 54 to which is attached a hammer 55. De-energising the solenoid allows the pin member 54 to fall and hammer 55 strikes against the top surface 56 of container 15 to release a predictable amount of powder from the bottom thereof.

To permit fine adjustment of the pin member and hammer, the two are interconnected at one of a number of discrete relative positions defined by vertically spaced holes 58; the particular position is selected by means of a clip 59, e.g. an R-shaped clip, passing through one of the holes. A typical range of adjustment is up to 3.5cm.

In use, a cup is placed on grill 44 against the lip 41. The machine can accommodate cups with a height range of 6.5cm to 15cm. The heights of the various components of the machine are then adjusted as necessary. The height of disc holder 20 is adjusted so that the disc 25 is approximately 0.25cm to 1cm and preferably 0.5cm above the top of the cup. The height of cradle 12 is then adjusted so that the container 15 is a desired height above the disc holder 20; a separation of between 1cm and 4cm has been found to produce good results.

By combining use of the coarse and fine adjustment mechanisms 52 and 58, 59 the fall height of hammer 55 relative to the top of the container 15 is then set. This will depend upon the degree of fineness of the

product within the container 15 and upon the amount of product it is desired to dispense for each impact.

If not already in position, a container 15 of the product to be dispensed is then inserted. Because the container is upside down, there is a risk of spillage of product out of the bottom. This can be substantially reduced by gentle insertion, and this is assisted by gap 17 which allows a user's fingers to support the container 15 at the bottom until it sits against the cradle. Holding the container by its sides would be more difficult, less precise and would involve shaking and jolts which would waste the product.

It is important that there is correct vertical alignment of all the components.

A disc 25 is selected from a range of discs with different patterns and logos and inserted in aperture 21. One of the switches 42 is then operated to actuate the solenoid to cause the hammer 55 to fall and a metered amount of product to be dispensed.

An advantage of the above-described machine is its speed of operation, the uniformity of the amount of product dispensed, and reduced waste and mess. The provision of two switches 42 permits ready operation by a left- or right-handed person.

Various modifications can be made to the above-described arrangement. For example only one of the height adjustment mechanisms may be provided for the height of the fall of the hammer. For machines which

are intended for use with only one size of cup, some or all of the height adjustment mechanisms may be omitted. In addition, if variation of the pattern to be provided does not change, a single disc 25 may be fixed in position, or the apertures may be provided directly in component 20.

The shape of disc 25 may be elliptical, square polygonal etc., provided that aperture 21 is appropriately shaped and sized.

The solenoid may be arranged such that energisation causes the product to be dispensed; for example the hammer could be arranged to hit a side surface of the container 15. If desired, the impact of the hammer may be produced manually, e.g. the hammer could be pulled against the force of gravity and/or a spring by a preset amount and then released.

Only one switch 42 may be provided.

The lid 65 of the container may have holes or may include a wire gauze to permit release of the product.

Any desired fine product in the form of powder, dust etc. may be housed in container 15. It can be dispensed not only in drinks but also over desserts or other foods.

CLAIMS

1. A dispenser for holding a container of a fine product, means for striking the container with a predetermined force to dispense product from the bottom of the container, and means which defines one or more apertures below the container and through which the product is arranged to all.

2. A dispenser according to claim 1, wherein the heights of the container, the striking means and the aperture-defining means are all independently adjustable.

3. A dispenser according to claim 1 or 2 and comprising a holding element with an opening for supporting the container, the opening having a gap in its periphery.

4. A dispenser according to any preceding claim, wherein the aperture defining means comprises a holding member having a hole arranged to be located beneath an inserted container.

5. A dispenser according to claim 4, wherein the edge region of the hole is stepped and an apertured element is arranged to rest on the step.

6. A dispenser according to claim 5 wherein the apertures in the element define a desired pattern or logo.

7. A dispenser according to any of claims 4 to 6 wherein the aperture defining means has a movable brush attached thereto which is capable of moving over the upper surface thereof.

8. A dispenser according to any preceding claim comprising a base member with means for locating beneath the container a receptacle into which or onto which the product is to fall.

9. A dispenser according to claim 8 wherein the locating means is a curved lip for locating a cup or mug.

10. A dispenser according to any preceding claim, wherein the striking means is arranged to strike an inserted container from above.

11. A dispenser according to claim 10, wherein the striking means comprises a hammer member which is raised by actuation of a solenoid device and then allowed to fall onto the container.

12. A dispenser according to claim 11 wherein the solenoid acts upon a pin member which is attached to the hammer and the position of which can be adjusted towards or away from the hammer.

13. A dispenser according to any of claims 10 to 12, wherein the striking means is mounted on a bracket, the height of which can be adjusted relative to the remainder of the dispenser.

14. A dispenser according to any of claims 1 to 10, wherein the striking means is arranged to hit a side surface of the container.

15. A dispenser according to claim 11 or 14, wherein the striking means is operated manually.

16. A dispenser substantially as herein described with reference to the accompanying drawing.

17. A method of dispensing a fine product using a dispenser according to any preceding claim.

18. A method in accordance with claim 17 comprising dispensing chocolate or cocoa powder on to the top of a cup of a cappuccino.

10.

Application No: GB 9914268.9 **Examiner:** Emma Tonner
Claims searched: 1-18 **Date of search:** 11 August 2000

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): B8N (NN, NL)

Int Cl (Ed.7): A47G 19/34: A47J 31/40, 43/22, 47/01, 47/04: B65D 83/06

Other: Online: WPI, EPODOC, PAJ

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	GB 2 271 758 A (STENTORFIELD)	
A	FR 2 643 876 A1 (FLEURY)	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.